

APPENDIX A
MUNITIONS DATASHEETS

MUNITIONS LIST:

ID	NAME	DATA SHEET
CTT01	50 CAL. MACHINE GUN	NO
CTT01	SMALL ARMS, GENERAL	YES
CTT07	AN-M30, GENERAL PURPOSE BOMB, 100 LBS	YES
CTT07	AN-M41, FRAG BOMB, 20 LBS	YES
CTT07	AN-M57 & AN-M57A1, GP, 250 LBS	YES
CTT07	AN-M64 & AN-M64A1, GP BOMB, 500 LBS	YES
CTT07	AN-M65 & AN-M65A1, GP BOMB, 1000 LBS	YES
CTT07	M72, FRAG BOMB, 23 LBS	YES
CTT08	AN-M50, INCENDIARY BOMB, 4 LBS	YES
CTT10	AN-Mk 5, AN-Mk 23, AN-Mk 43, PRAC	YES
CTT10	M38A2, PRACTICE BOMB, 100 LBS	YES
CTT10	SIGNAL, PRACTICE BOMB, Mk 4	YES
CTT10	SPOTTING CHARGE, M1A1	YES
CTT28	2.25-INCH, PRACTICE ROCKET	YES

CTT01

SMALL ARMS

**NO DATASHEET AVAILABLE
50 CAL. MACHINE GUN**

SMALL-ARMS AMMUNITION

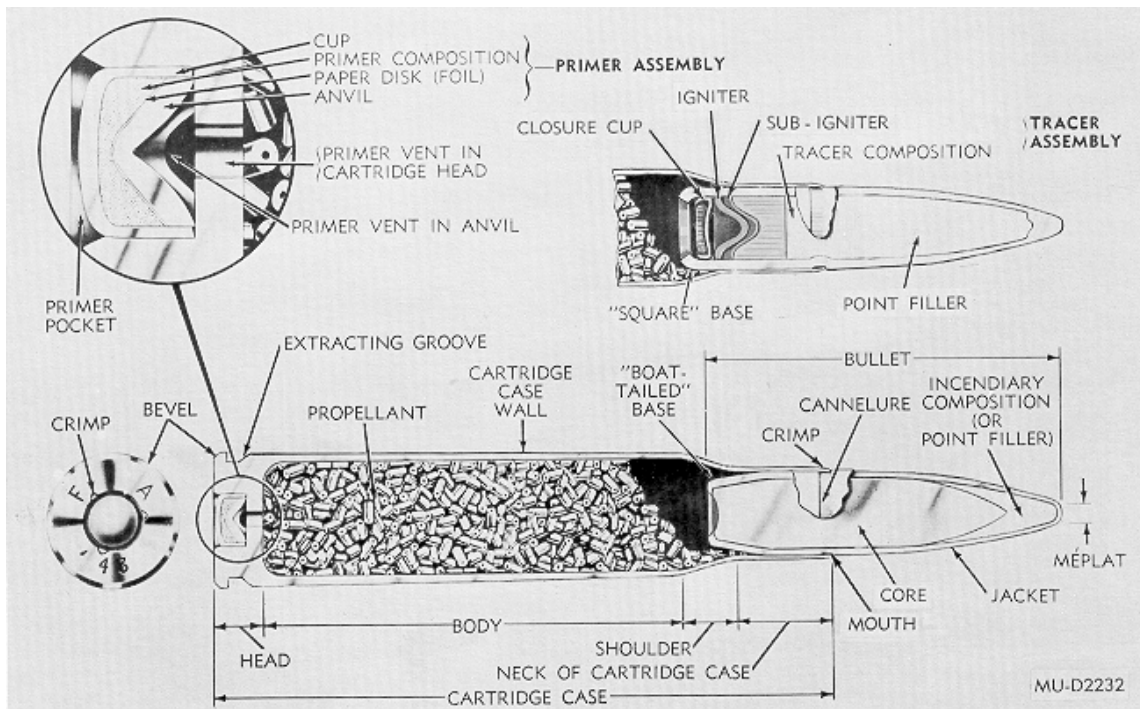
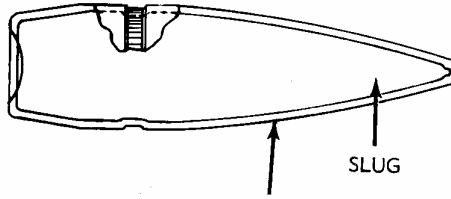


Figure 1. Typical cartridge (sectional)

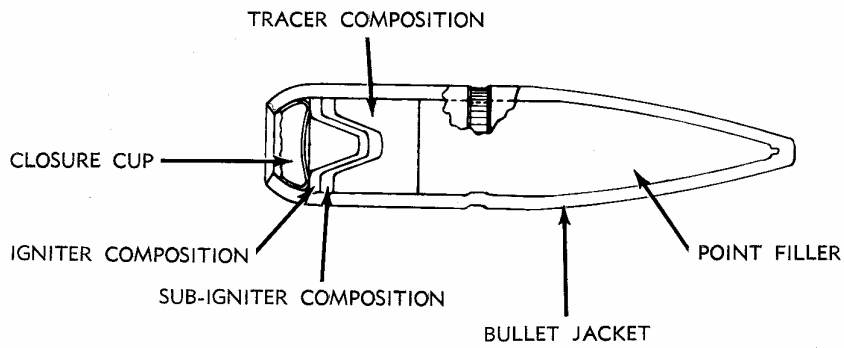
General. Small-arms ammunition, as used herein, describes a cartridge or families of cartridges intended for use in various types of hand-held or mounted weapons through 30 millimeter. Within a caliber designation, these weapons may include one or more of the following: rifles (except recoilless), carbines, pistols, revolvers, machineguns and shotguns. For purposes of this publication, small-arms ammunition may be grouped as cartridges intended primarily for combat or training purposes (API, HEI, tracer or ball); for training purposes only (blank or dummy); or for special purposes (rifle grenade or spotter-tracer). Refer to TM 9-1306-200 for more detailed information on small-arms ammunition.

Cartridges. In general, a small-arms cartridge is identified as an assembly of a cartridge case, primer, a quantity of propellant within the cartridge case, and a bullet or projectile. Blank and rifle grenade cartridges are sealed with paper closure disks in lieu of bullets. Dummy cartridges are composed of a cartridge case and a bullet. Some dummy cartridges contain inert granular materials to simulate the weight and balance of live cartridges. A typical cartridge and the terminology of its components are shown in figure 1.

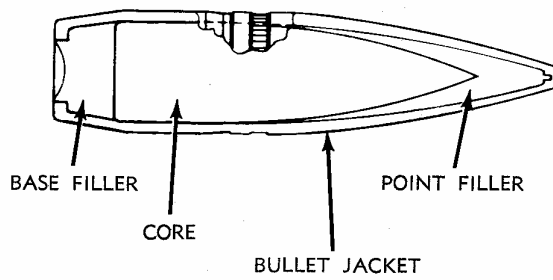
Case. Although steel, aluminum, zinc and plastic materials have been used experimentally, brass, a composition of 70 percent copper and 30 percent zinc, is the most commonly used material for cartridge cases. Steel, as well as brass, is an approved material for caliber .45 cartridge cases. Brass, paper and plastic are used for 12 gage shotshell bodies. Aluminum is used for military-type .410 gage shotshell bodies. Configurations of cartridges and bullets are illustrated in figures 2 through 9.



BALL (NATO)



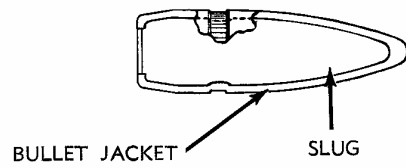
TRACER (NATO)



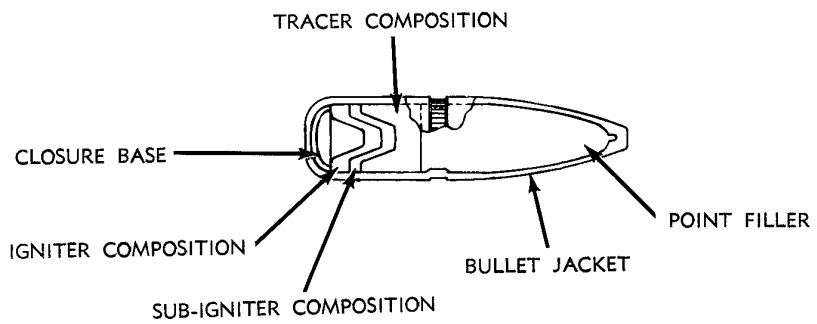
ARMOR-PIERCING (NATO)

MU-D 2233

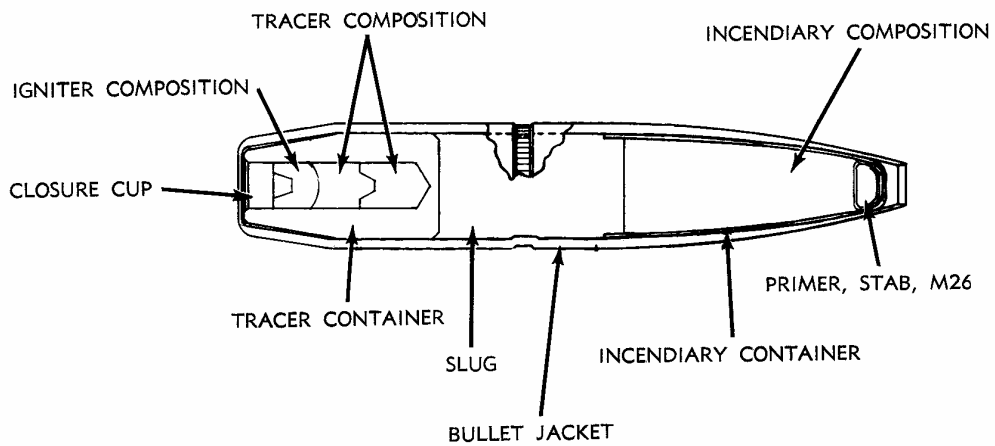
Figure 2. 7.62 mm bullets (sectional)



5.56 MM BALL



5.56 MM TRACER



CALIBER .50, SPOTTER TRACER

MU-D 2234

Figure 3. 5.56mm and caliber .50 spotter tracer bullets (sectioned)

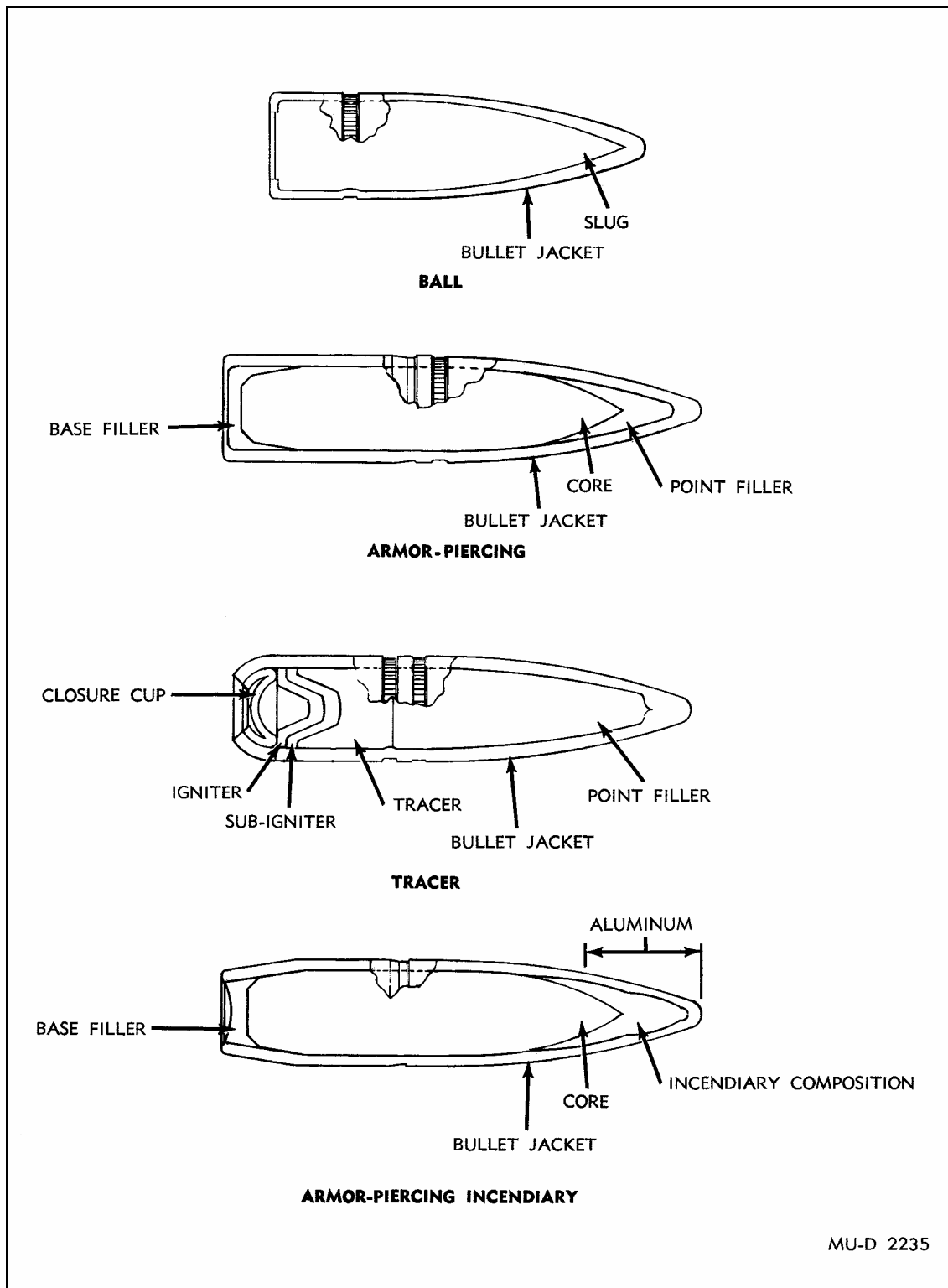


Figure 4. Caliber .30 bullets (sectional)



Figure 5. 7.62mm cartridges

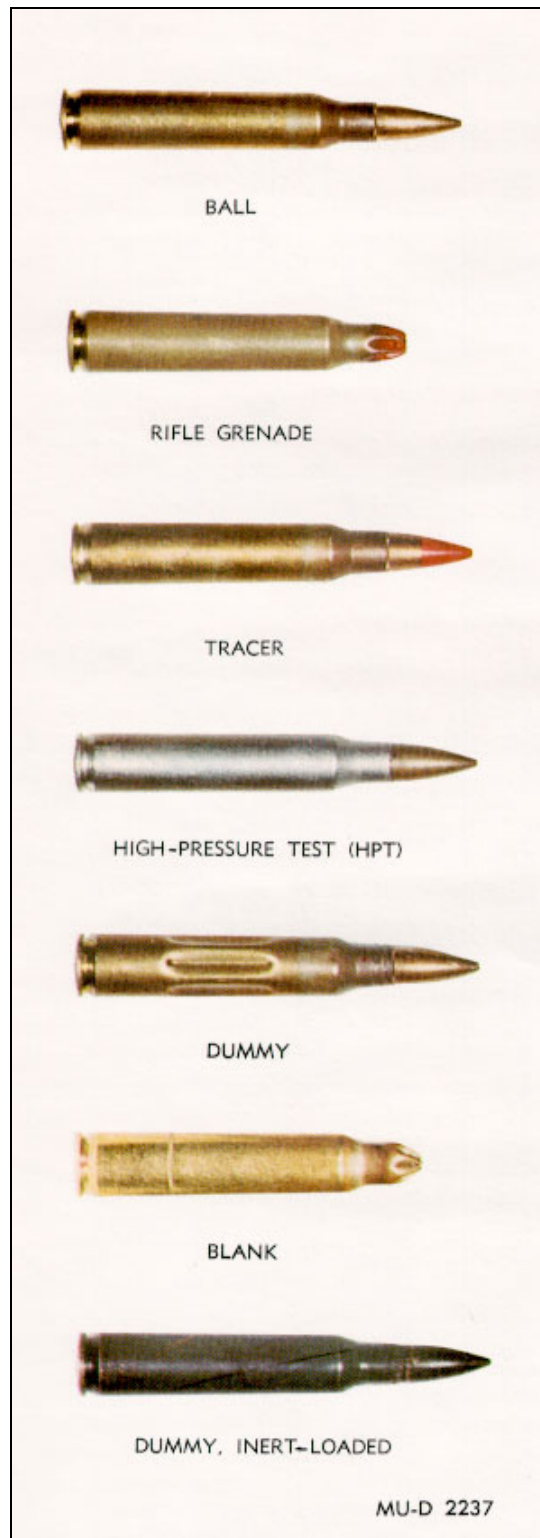


Figure 6. 5.56mm cartridges

Propellant. Cartridges are loaded with varying weights of propellant. This is to impart sufficient velocity (within safe pressures) to the projectile to obtain the required ballistic performance. These propellants are either of the single-base (nitrocellulose) or double-base (nitrocellulose and nitroglycerine) type. The propellant grain configuration may be cylindrical with a single, lengthwise perforation, spheroid (ball) or flake. Most propellants are coated with a deterrent (to assist in controlling the rate of combustion) and with a final coating of graphite (to facilitate flow of propellant and eliminate static electricity in loading cartridges).

Primer. Small-arms cartridges contain either a percussion or electric primer. The percussion primer consists of a brass or gilding metal cup that contains a pellet of sensitive explosive material secured by a paper disk and a brass anvil. The electric primer consists of an electrode button in contact with the priming composition, a primer cup assembly and insulator. A blow from the firing pin of the weapon on the center of the percussion primer cup base compresses the primer composition between the cup and the anvil. This causes the composition to explode. The function of the electric primer is accomplished by a firing pin with electrical potential, which contacts the electrode button. This allows current to flow through the energy-sensitive priming composition to the grounded primer cup and cartridge case, exploding the priming composition. Holes or vents in the anvil or closure cup allow the flame to pass through the primer vent in the cartridge case and ignite the propellant. Rimfire ammunition, such as the caliber .22 cartridge, does not contain a primer assembly. Instead, the primer composition is spun into the rim of the cartridge case and the propellant is in intimate contact with the composition. On firing, the firing pin strikes the rim of the cartridge case, compressing the primer composition and initiating its explosion.

Bullet. With few exceptions, bullets through caliber .50 are assemblies of a jacket and a lead or steel core. They may contain other components or chemicals which provide the terminal ballistic characteristics of the bullet type. The bullet jacket may be either gliding metal, gliding-metal clad steel, or copper plated steel. Caliber .30 and 7.62mm frangible bullets are molded of powdered lead and a friable plastic which pulverizes into dust upon impact with the target. The pellets used in the shotgun shells are spheres of lead alloys varying from 0.08 inch to 0.33 inch in diameter.

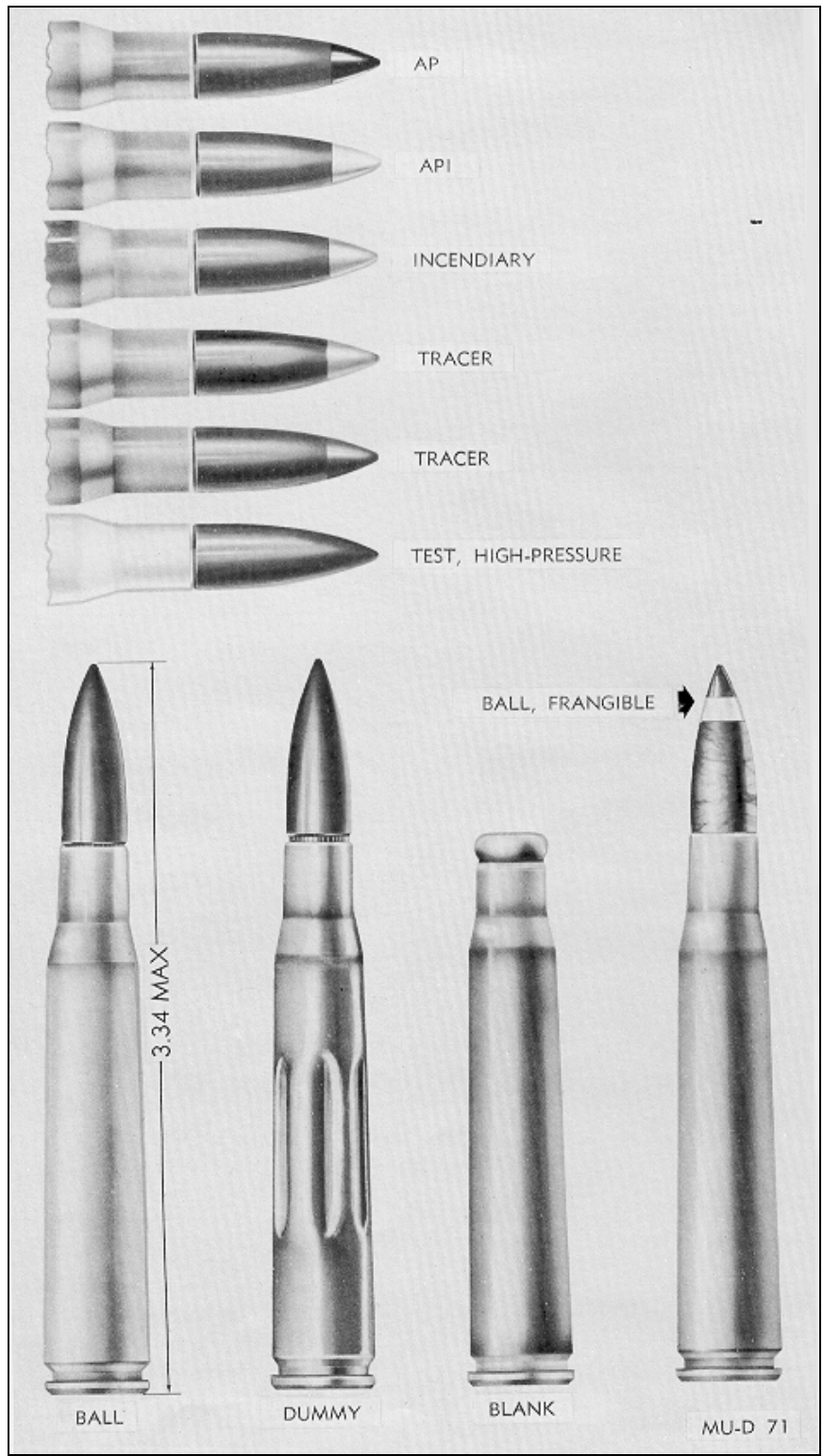


Figure 7. Caliber .30 cartridges

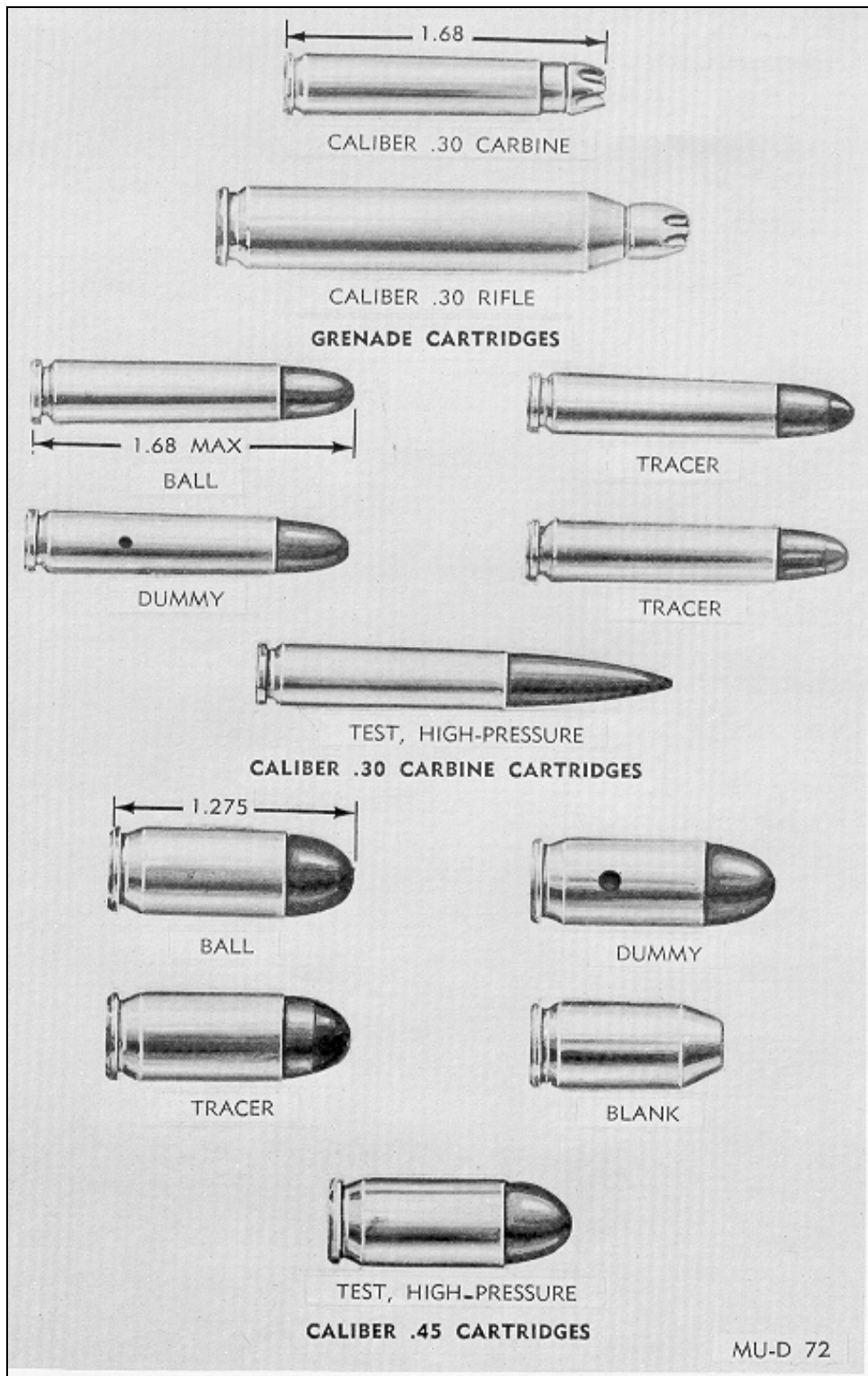


Figure 8. Caliber .30 carbine and caliber .45 cartridges



Figure 9. Caliber .50 cartridges

Ball Cartridge. The ball cartridge is intended for use in rifles, carbines, pistols, revolvers and/or machineguns against personnel and unarmored targets. The bullet, as designed for general purpose combat and training requirements, normally consists of a metal jacket and a lead slug. Caliber .50 ball bullet and 7.62-mm, Ball M59 bullet contain soft steel cores.

Tracer Cartridge. By means of a trail of flame and smoke, the tracer cartridge is intended to permit visible observation of the bullet's in-flight path or trajectory and the point of impact. It is used primarily to observe the line of fire. It may also be used to pinpoint enemy targets to ignite flammable materials and for signaling purposes. The tracer element consists of a compressed, flammable, pyrotechnic composition in the base of the bullet. This composition is ignited by the propellant when the cartridge is fired. In flight, the bullet emits a bright flame which is visible to the gunner. Trace burnout occurs at a range between 400 and 1,600 yards, depending upon the caliber of ammunition.

Match Cartridge. The match cartridge is used in National and International Match Shooting competitions. The bullet consists of a gliding-metal jacket over a lead slug. The cartridges are identified on the head face with the designation NM (National Match) or Match.

Armor-Piercing Cartridges. The armor-piercing cartridge is intended for use in machineguns or rifles against personnel and light armored and unarmored targets, concrete shelters, and similar bullet-resisting targets. The bullet consists of a metal jacket and a hardened steel-alloy core. In addition, it may have a base filler and/or a point filler of lead.

Armor-Piercing-Incendiary Cartridge. The armor-piercing-incendiary cartridge is used in rifles or machineguns as a single combination cartridge in lieu of separate armor-piercing and incendiary cartridges. The bullet is similar to the armor-piercing bullet, except that the point filler is incendiary mixture instead of lead. Upon impact with the target, the incendiary mixture burst into flame and ignites flammable material.

Armor-Piercing-Incendiary Tracer Cartridge. The bullet of the armor-piercing-incendiary-tracer cartridge combines the features of the armor-piercing, incendiary, and tracer bullets and may be used to replace those cartridges. The bullet consists of a hard steel core with compressed pyrotechnic mixture in the cavity in the base of the core. The core is covered by a gliding-metal jacket with incendiary mixture between the core point and jacket. This cartridge is for use in caliber .50 weapons only.

Duplex Cartridge. The duplex cartridge contains two special ball type bullets in tandem. The front bullet is positioned partially in the case neck, similarly to a standard ball bullet. The rear bullet, positioned completely within the case, is held in position by a compressed propellant charge. The base of the rear bullet is angled so that in flight, it follows a path slightly dispersed from that of the front bullet.

Spotter-Tracer Cartridge. The spotter-tracer cartridge is intended for use in coaxially mounted caliber .50 spotting rifles. The bullet trajectory closely approximates that of

106mm projectiles. Thus, this cartridge serves as a fire control device to verify weapon sight settings before firing 106mm weapons. The bullet contains an impact detonator and incendiary composition which identify the point of impact by flash and smoke.

Blank Cartridge. The blank cartridge is distinguished by absence of a bullet. It is used for simulated fire, in training maneuvers, and for saluting purposes. It is fired in rifles and machineguns equipped with blank firing attachments.

Grenade Cartridge. The grenade cartridge is used to propel rifle grenades and ground signals from launchers attached to rifles or carbines. All rifle grenade cartridges are distinguished by the rose petal (rosette crimp) closure of the case mouth.

Frangible Cartridge. The caliber .30 frangible cartridge, designed for aerial target training purposes, is also used in rifles and machineguns for target shooting. Caliber .30 and 7.62mm frangible cartridges are used in tank machineguns, firing single shot, for training in tank gunnery. At its normal velocity, the bullet, which is composed of powdered lead and friable plastic, will completely disintegrate upon striking a 3/16-inch aluminum alloy plate at 100 yards from the muzzle of the gun. These cartridges are not to be used on any but well ventilated indoor ranges to preclude buildup of toxic bullet dust. Inhalation of bullet dust may be injurious to health.

Incendiary Cartridge. The incendiary cartridge was designed for aircraft and ground weapon use to ignite combustible targets (e.g., vehicular and aircraft fuel tanks). The bullet contains a compressed incendiary mixture which ignites upon impact with the target. The incendiary cartridge has been superseded by the API and APIT cartridges because of their improved terminal ballistic effects.

Special Purpose Cartridge

Cartridges of various calibers. (figures. 10 through 12), which consist of different types of projectiles and bullets, are used for training and special purposes. They include the following:

- (1) Caliber .22 long rifle and caliber .38 and .45 wad-cutter cartridge for target shooting.
- (2) Caliber .45 blank cartridges fired in exercises to condition dogs to gun fire.
- (3) Caliber .22 hornet and .410 shotgun cartridges for firing in Air Force combination (survival) weapons for hunting purposes.
- (4) Caliber .45 line-throwing cartridges for firing in caliber .45 line-throwing rifles. The Navy uses these for throwing lines from ship-to-ship. The Army Signal Corps uses these for projecting signal wires over elevated terrain.

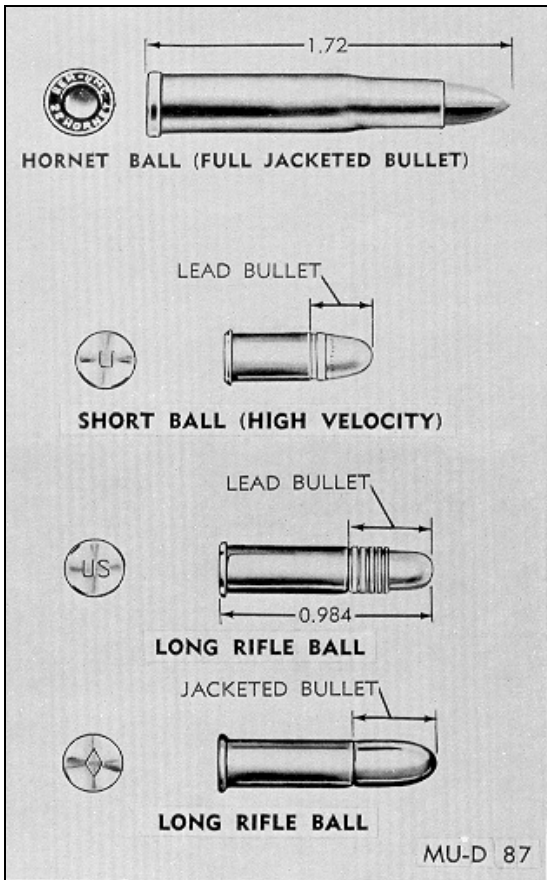


Figure 10. Caliber .22 cartridges

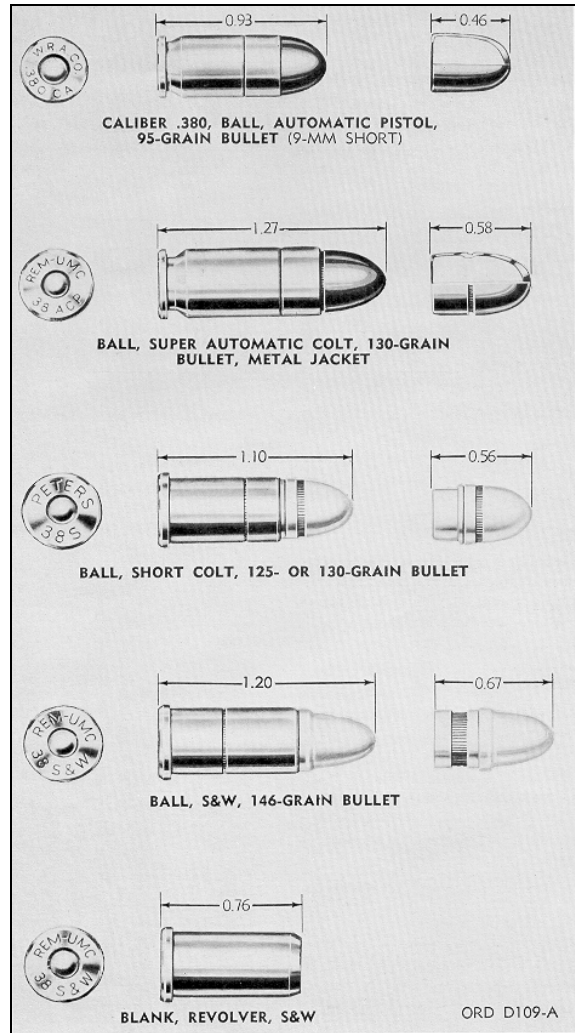


Figure 11. Caliber .38 cartridges

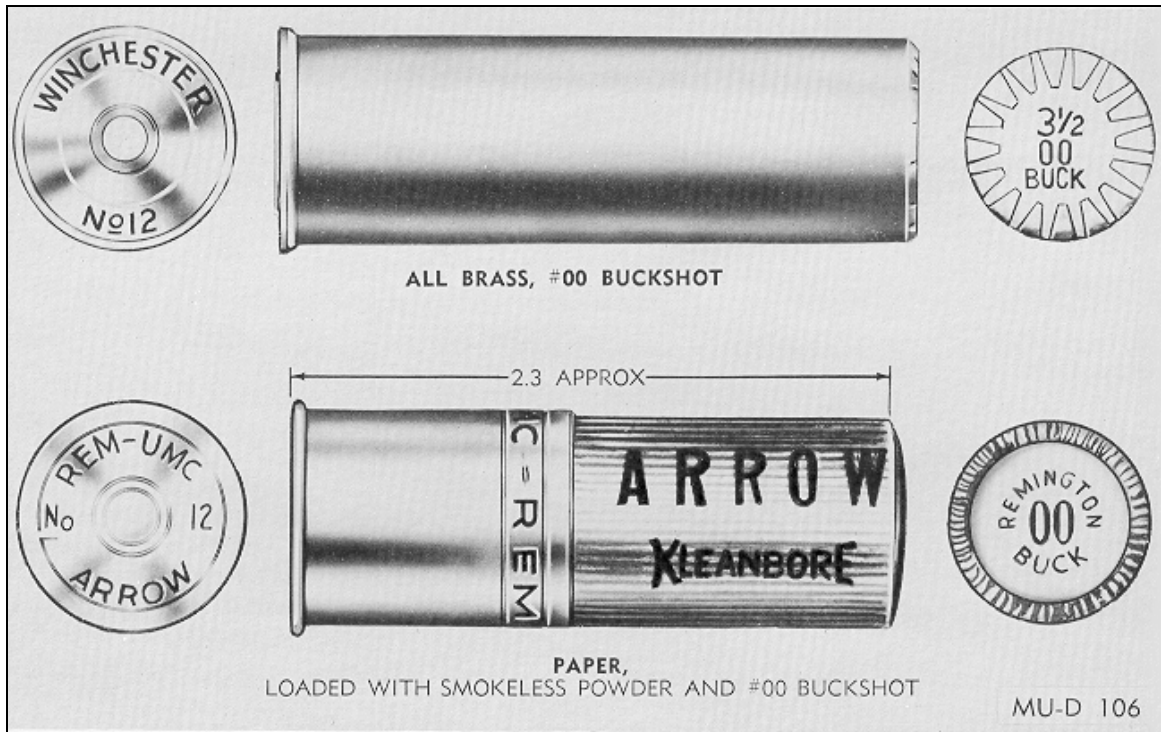


Figure 12. 12 gage shotgun shells

(5) Shotshells containing the designated shot sizes as required for the following:

- 12 gage #00 Buck for guard duty
- 12 gage #4 Buck for guerrilla purposes.
- 12 gage #6, 7½ and 8 shot for clay target shooting for training purposes.
- .410 gage #7 shot for caliber .22/.410 survival weapons maintained by aircraft

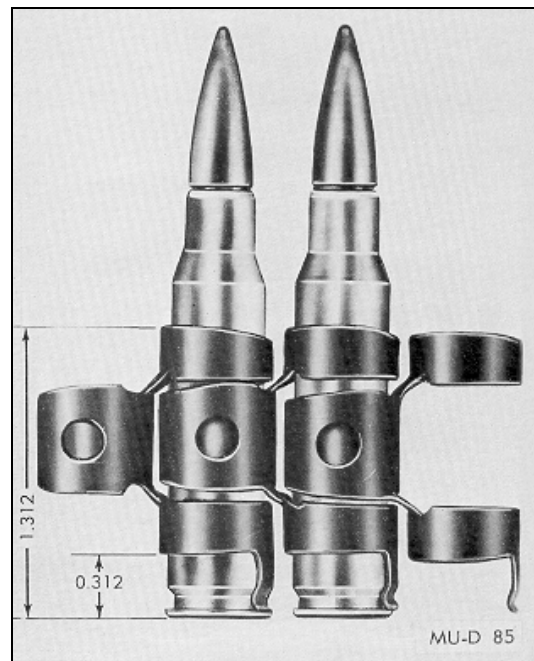


Figure 13. Linked 7.62-mm cartridges

Special purpose cartridges also include the following types of military cartridges:

(1) Dummy. The dummy cartridge is used for practice in loading weapons and simulated firing to detect flinching of personnel when firing weapons. It consists of a cartridge case and a ball bullet. Cartridge identification is by means of holes through the side of the case or longitudinal corrugations in the case and by the empty primer pocket.

(2) Dummy inert-loaded. This cartridge consists of a cartridge case, a ball bullet and inert granular material in the case simulating the weight and balance of a live cartridge. The exterior of the cartridge is identified by a black chemical finish and by the absence of a primer. This cartridge is used by installations for testing weapon function, linkage and feed chutes.

(3) High-pressure test. High-pressure test ammunition is specially loaded to produce pressures substantially in excess of the maximum average or individual pressures of the corresponding service cartridge. This cartridge is not for field issue. It is used only by armorers and weapons mechanics for proof firing of weapons (rifles, pistols, machine guns) at place of manufacture, test and repair. Because of excessive pressures developed by this type of ammunition, and the potential danger involved in firing, proofing of weapons is conducted only by authorized personnel from fixed and shielded rests by means of a lanyard or other remote control methods.

Metallic Links and Clip

Metallic links. (figures. 13 and 14) are used with caliber .30, caliber .50, 5.56mm, 7.62mm and 20mm cartridges in machine guns. The links are made of steel, surface treated for rust prevention. They are used to assemble cartridges into linked belts of 100 to 750 cartridges per belt. The links must meet specific test and dimension requirements to assure satisfactory ammunition feed and functioning in the machine gun under all training and combat service conditions.

Different configurations of cartridge clips. These permit unitized packages of ammunition. This facilitates transfer of cartridges to appropriate magazines for caliber .30, 7.62mm and 5.56mm rifles. The caliber .30 eight-round clip feeds eight cartridges as a unit into the receiver of the rifle. The caliber .45 clip feeds three cartridges as a unit into the revolver cylinder. Five-round and eight-round clips are used with caliber .30 cartridges; five-round clips with 7.62mm cartridges; ten-round clips with caliber .30 carbine and 5.56-mm cartridges; and three-round clips with caliber .45 cartridges.

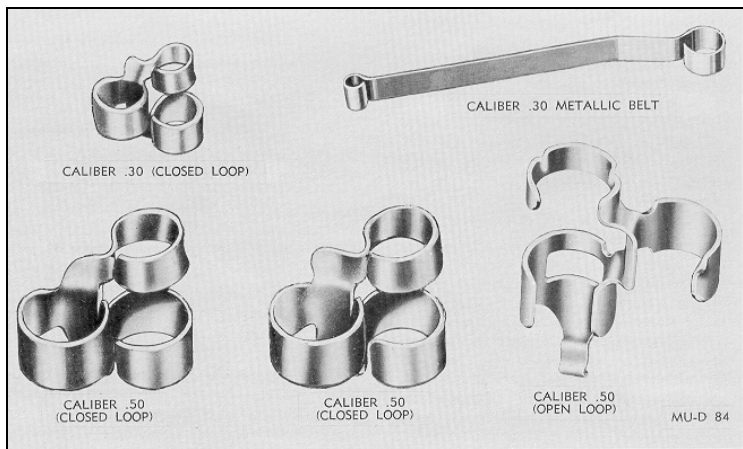


Figure 14. Links for caliber .30 and caliber .50 ammunition

Identification Markings. Each outer shipping container and all inner containers are fully marked to identify the ammunition. Wire-bound boxes are marked in black and ammunition boxes are painted olive drab, with markings in yellow. When linked ammunition is functionally packed, component lot numbers are replaced by a functional lot number. Typical packing and identification markings are illustrated in figures 15 through 17.

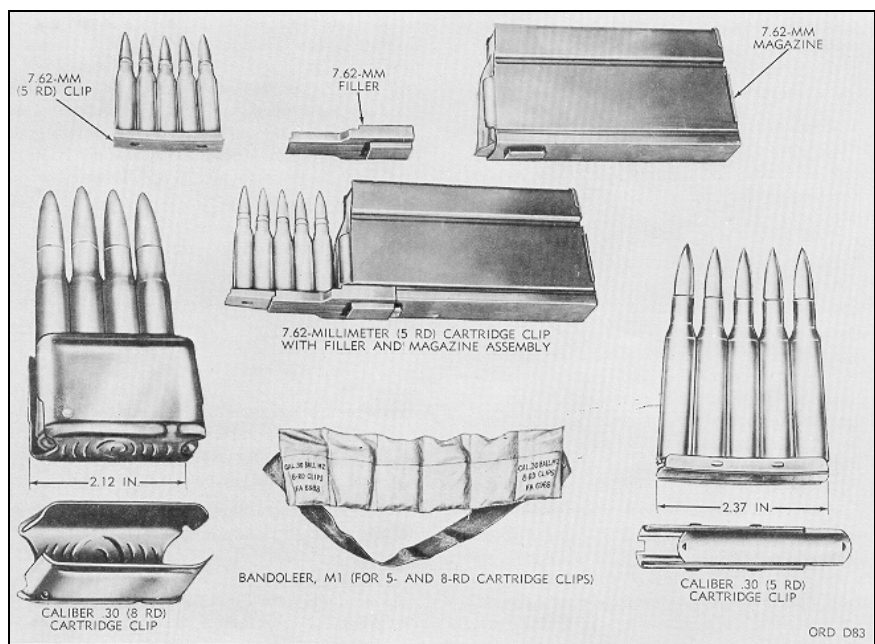


Figure 15. Cartridges, links, belt, cartons, bandoleers and ammunition box

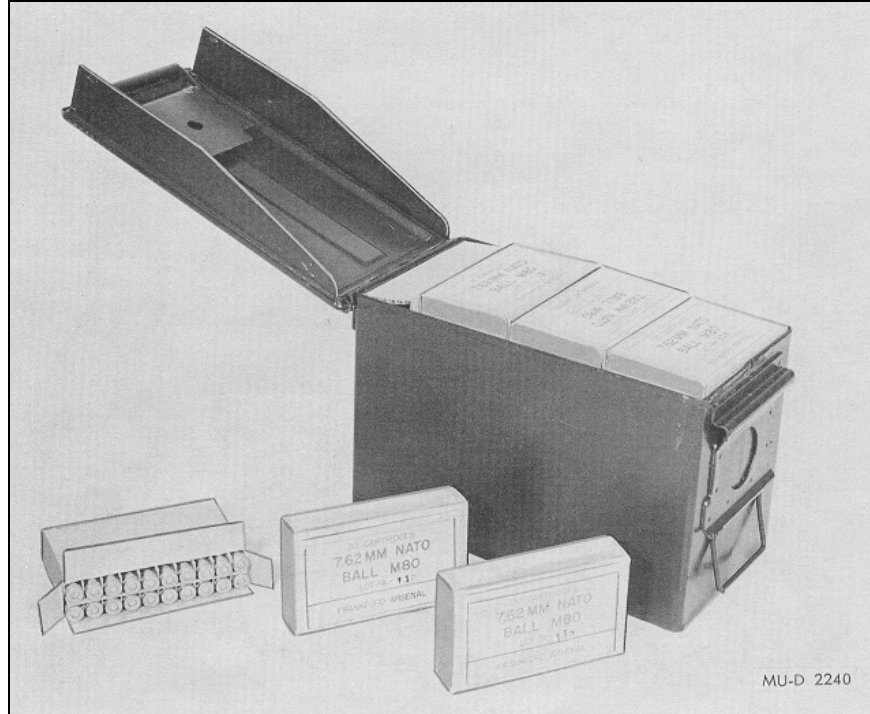


Figure 16. Cartridges, link belt, cartons, bandoleers and ammunition box

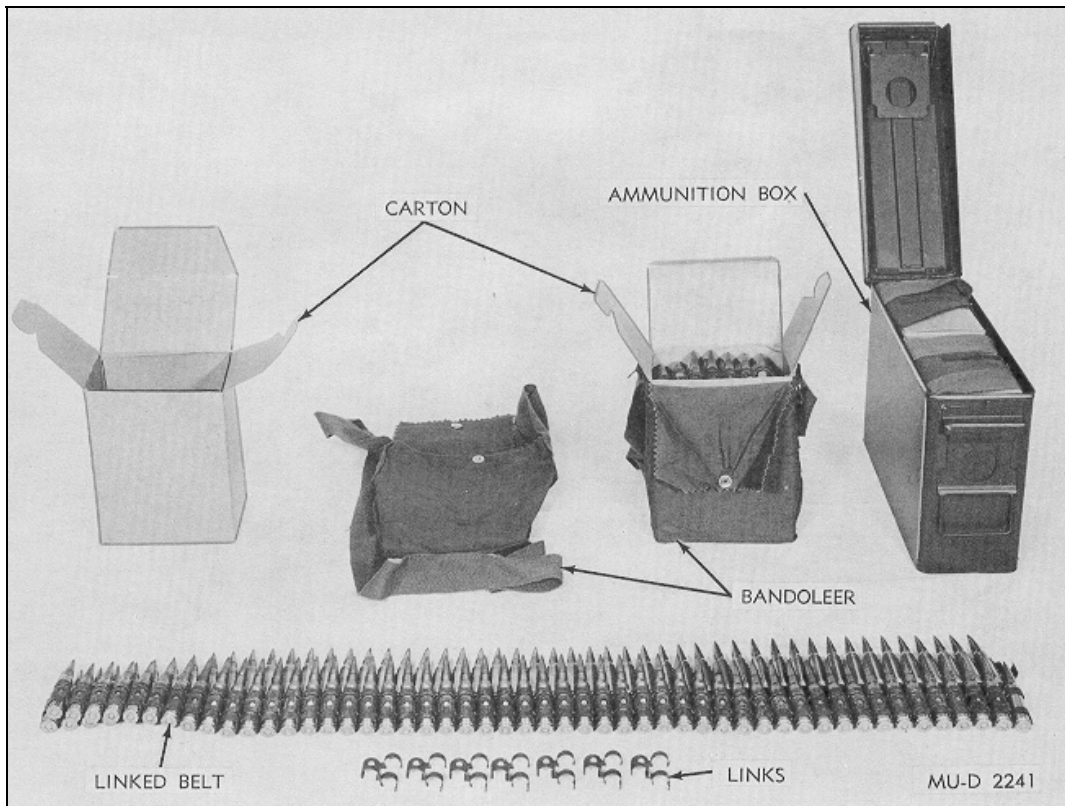


Figure 17. Cartridges, link belt, cartons, bandoleers and ammunition box

Care, Handling and Preservation

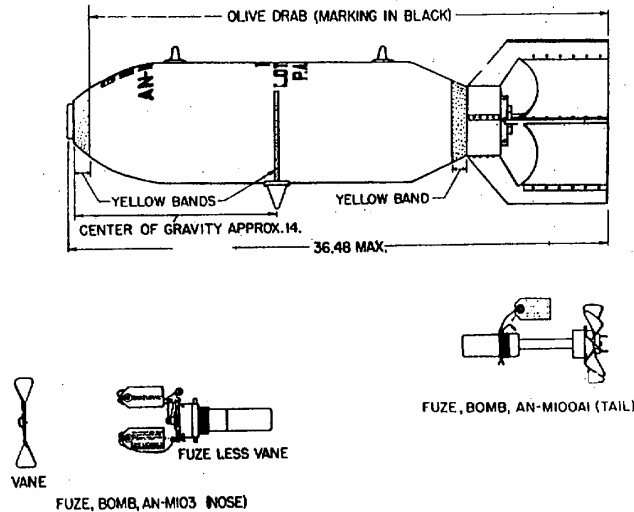
Small-arms ammunition is comparatively safe to handle. It is packed to withstand transportation, handling and storage conditions normally encountered in the field. However, consideration should be given to general handling precautions pertaining to ammunition and explosives.

Reference: This data is a reprint of Chapter 3, TM 9-1300-200, *Ammunition General*, October 1969

CTT07

BOMBS, HIGH EXPLOSIVE

BOMB, GP, 100-POUND, AN-M30



Description. The GP and M series bombs of 100-pound weight have the same dimensions. The GP is distinguishable from the M-series by the fact that it has a base plug in the tail and a single suspension lug in addition to two Army lugs. The old GP bombs are a relatively thin-cased bomb with an ogival nose, parallel sidewalls, and a tapered aft section. It uses both the box type and conical type fin assembly. The box-type fin assembly is secured to the aft end of the bomb with a fin locknut, while the conical-type fin assembly is secured to the bomb body by means of a support tube. The two Army lugs are 14 inches apart, each 7 inches from the center of gravity. The single suspension lug is on the center of gravity 14 inches behind the nose. The weight of the case is 42.1 pounds and the fins weigh between 5.6 to 17.5 pounds. The filler is 50/50 amatol, TNT, or Tritonal. Percentage of filler is approximately 49 percent. The AN-M30 Bomb is fuzed in the nose with the AN-M103 Fuze and in the tail with the AN-M100A2 Fuze. Alternate fuzes that may be used as substitutes or for special purposes are the M103, M118, or M119 Nose Fuzes, and the M112, M100, M106, or its modifications, or the AN-M100A1 Tail Fuzes.

Length, assembled bomb

Fin assembly AN-M103A1 40.26 inches
Fin assembly M135 54.2 inch

Diameter 8.18 inch

Weight of Filler

TNT 57 pound
Amatol 54 pound
Tritonal 62 pound

Fuze:

Nose AN--M103, M103, M118,

M119

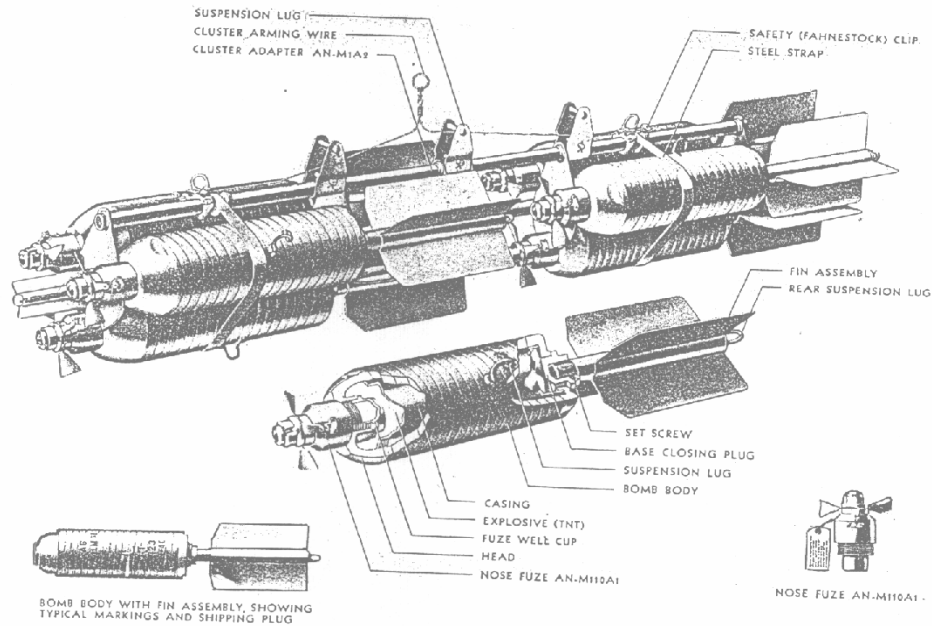
Tail AN-M103, M112, M100,
M106,
AN-M100A1

Painting and Markings Olive drab with black stencil,
2 yellow bands (1aft, 1

center)

References: TM 9-1904, *Ammunition Inspection Guide*, 2 March 1944, TM 9-1325-200, *Bombs and Bomb Components*, April 1966

BOMB, FRAGMENTATION, 20-LBS, AN-M41 & AN-M41A1



Body. This bomb is constructed of cast-steel nose and tailpieces, a seamless steel inner tube, and a helically wrapped drawn steel wire wrapping around the inner tube. The tube is threaded to hold the nose and tail section

Suspension. For individual suspension of this bomb, a U-shaped eyebolt of steel is welded to the body at the center of gravity for horizontal suspension, and an eyebolt is welded to the tail for vertical suspension. The bomb may be dropped in a cluster of six bombs in the *Cluster Adapter AN-M1A2* or *M1*, forming the *Cluster AN-M1A1* or *M1*. The cluster adapter is made of sheet steel, and does not use eyebolts of bombs for suspension.

Tail. Four rectangular sheet-steel vanes are welded to a length of one-inch cast-iron pipe which screws into the base-filling plug.

Over-all length	19.5 inches
Body length	11.3 inches
Diameter	3.6 inches
Over all weight	20.3 pounds
Filler	TNT
Filler weight	2.7 pounds
Fuzing	M158, AN-M110A1, M110, M109

Reference: NAVSEA OP 1664, *U.S. Explosive Ordnance*, May 1947

BOMB, GENERAL PURPOSE, 250 LB, AN-M57 AND AN-M57A1

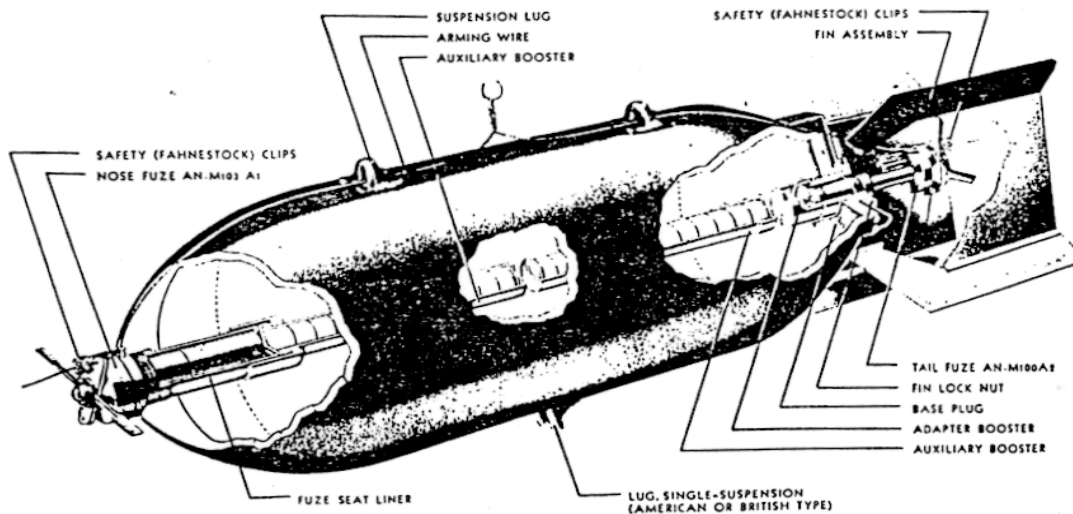


Figure 282. 250-pound G.P. Bomb AN-M57

Description. This bomb is of cylindrical construction and may be charged with 50-50 Amatol, TNT, or Tritonal. The bomb is painted Olive Drab with black markings. Yellow bands around the nose and tail are used to distinguish which explosive is loaded in the bomb. One band for TNT and Amatol, and three bands for Tritonal. This bomb may be fitted with box, conical, or parachute retarding tail assemblies that affect the overall length. Only the length of the main body is given here.

Body Length 36 inches
Body Diameter 10.9 inches

	50-50 Amatol	TNT	Tritonal
Total Weight	243 lbs	247.2 lbs	253.7 lbs
Filler Weight	119.7 lbs	124.6 lbs	131.1 lbs

	Nose	Tail
Fuze	M103, M103A1	M100A1, M100A2
	M139, M139A1	M112, M112A1
	M140, M140A1	M115
	M163, M164, M165	M123 series
	M166, M168	M132
		M151

References: NAVSEA OP 1664, dated 28 May 1947, with change 1, dated 15 January 1969;
 TM 9-1980, dated December 1950

BOMB, GENERAL PURPOSE, 500 LB, AN-M64 & AN-M64A1

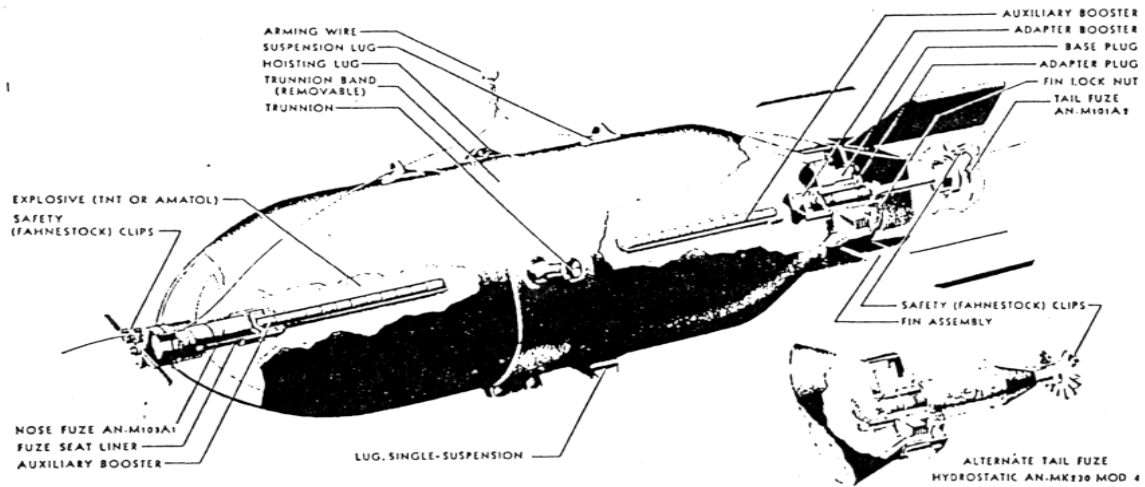


Figure 283. 500-pound G.P. Bomb AN-M64

Description. This bomb is of cylindrical construction and may be charged with 50-50 Amatol, TNT, Comp B, or Tritonal. The bomb is painted Olive Drab with black markings. Yellow bands around the nose and tail are used to distinguish which explosive is loaded in the bomb. One band for TNT and Amatol, two for Comp B, and three bands for Tritonal. This bomb may be fitted with box, conical, or parachute retarding tail assemblies that affect the overall length. Only the length of the main body is given here.

Body Length 36 inches
Body Diameter 10.9 inches

	50-50 Amatol	TNT	Comp B	Tritonal
Total Weight	516.3 lbs	523.1 lbs	529.8 lbs	535.4 lbs
Filler Weight	258.5 lbs	266 lbs	272.7 lbs	278.3 lbs

	Nose	Tail
Fuze	M103, M103A1	M101, M101A1, M100A2
	M135, M135A1	M113, M113A1
	M136, M136A1	M116
	M139, M139A1	M161
	M140, M140A1	M124, M124A1
	M149	M133
	M163, M164, M165	M151
	M166, M168	
	Mk243, Mk244	
	Mk 239	
	Mk219	

References: *NAVSEA OP 1664*, dated 28 May 1947, with change 1, dated 15 January 1969;
TM 9-1980, dated December 1950

BOMB, GENERAL PURPOSE, 1,000 LB, AN-M65 & AN-M65A1

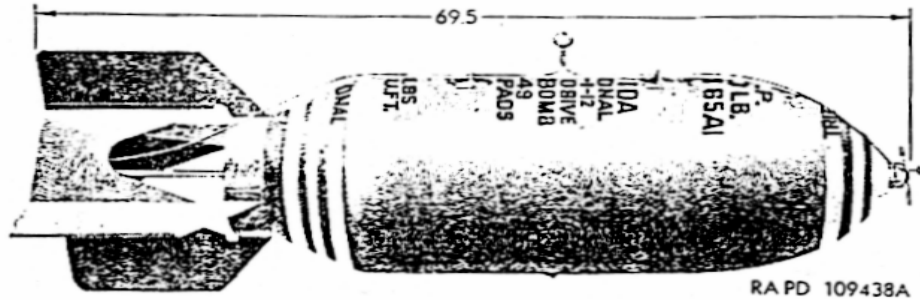


Figure 85. Bomb, GP, tritonal, 1,000-lb, AN-M65A1.

Description. This bomb is of cylindrical construction and may be charged with Tritonal, TNT, Comp B, or 50-50 Amatol. The primary difference between the M65 and M65A1 is that the M65A1 is fitted with a single lifting lug located opposite of the standard dual lifting lugs. If the Navy uses the bomb, it may be fitted with a trunnion band, M2A1. This bomb may be fitted with conical or box fins or with a parachute retarding unit. These will affect the overall length of the bomb; the length of bomb listed below is for the bomb without a tail assembly. The bomb is painted Olive Drab with Yellow bands around the nose and Tail indicating the filler: one for Amatol or TNT, two for Comp B, and three for Tritonal.

Body Length 67 inches
Body Diameter 19 inches

	50-50 Amatol	TNT	Comp B	Tritonal
Total Weight	970 lbs	1,015 lbs	1,013 lbs	1,016 lbs
Filler Weight	529.8 lbs	545.2 lbs	572.2 lbs	575.7 lbs

	Nose	Tail
Fuze	M103, M103A1	M102, M102A1, M102A2
	M135, M135A1	M162
	M136, M136A1	M114, M114A1
	M139, M139A1	M117
	M140, M140A1	M125, M125A1
	M149	M134
	M163, M164, M165	Mk 238 Mod 0
	Mk 239	Mk 230
	Mk 243, Mk 244	Mk 240
	T50E4, M166, T82	

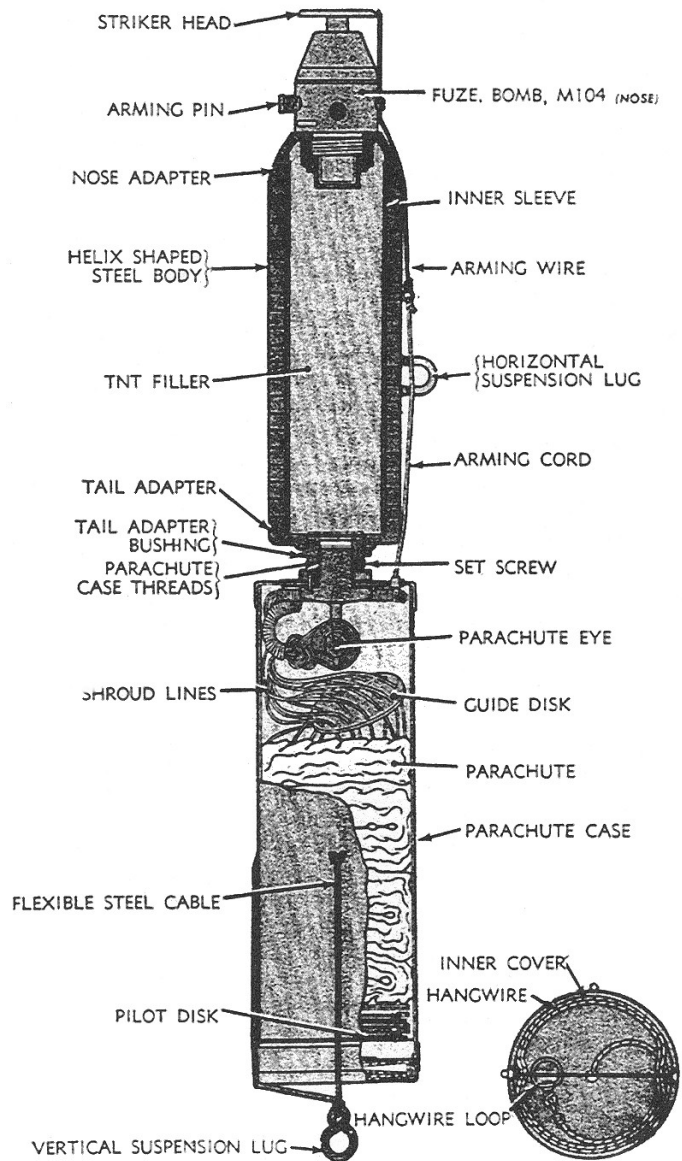
References: NAVSEA OP 1664, dated 28 May 1947, with change 1, dated 15 January 1969; TM 9-1980, dated December 1950

BOMB, FRAGMENTATION, 23-LBS, M72

Body. The body consists of an inner tubular steel sleeve which is threaded on both ends. Assembled over the sleeve is a closely wound helix bar of steel whose width and thickness will determine the size of the fragments. The helix bar is held securely in place by two end adapter forgings screwed into the threads of the inner sleeve. The nose adapter is internally threaded to receive the nose fuze and fuze well cup. The tail adapter is closed and has a threaded protrusion to receive the parachute unit. The parachute case is cylindrical in shape, and made of sheet metal.

Suspension. For individual suspension of this bomb, a U-shaped eyebolt of steel is welded to the body at the center of gravity for horizontal suspension, and an eyebolt secured to the parachute assembly for vertical suspension.

Cluster. Three M40 bombs may be assembled in the *Cluster Adapter AN-M4* to form the *Fragmentation Bomb Cluster AN-M4*.



RA PD 23016

Overall length	26.7 inches
Body Length	11.3
Diameter	3.6 inches
Over all weight	24.5 pound
Filler	TNT
Filler weight	2.7 pounds

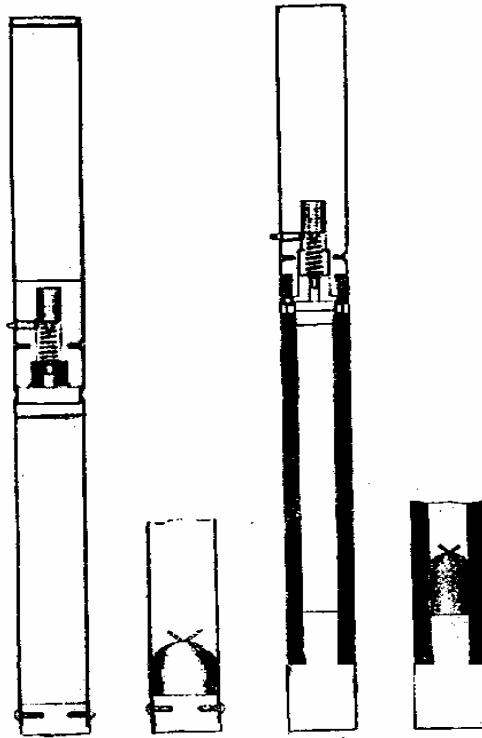
Fuzing..... AN-M104 or AN-M120

Reference: NAVSEA OP 1664, *U.S. Explosive Ordnance*, May, 1947; TM 9-1904, *Ammunition Inspection Guide*, March 1944

CTT08

BOMBS, (INCENDIARY, PHOTOFLASH)

BOMB, INCENDIARY, M50



General. Principally used against buildings of frame construction, in conjunction with the use of demolition bombs. These bombs are normally unpainted metal but may be painted a light green to prevent oxidation during storage. A purple band around center of the body denotes incendiary nature of bomb. Nose of bomb is stamped with designation and manufacturer's markings. Fuze tail mechanical impact, no designation.

Over-all length 21.35 inches
Diameter 1.7 inches
Weight 4 pounds
Filler Thermit

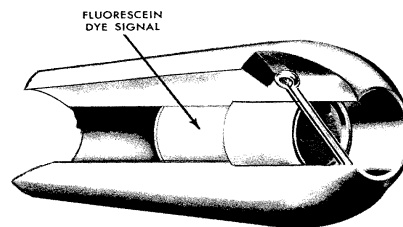
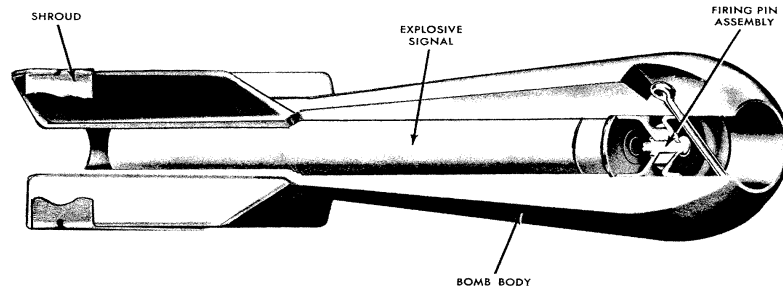
Reference: TM 9-1984, *Disposal of American and Allied Bombs and Fuses*, Nov 1942

CTT10

BOMBS, PRACTICE

MINIATURE PRACTICE BOMBS

AN-Mk 5 Mod 1, AN-Mk 23, AN-Mk 43



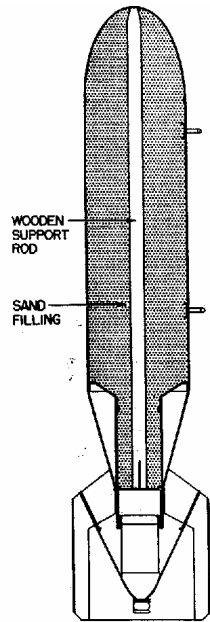
ORD D1160

Description. These bombs are used for low-altitude horizontal, or dive-bombing practice. The three bombs are similar in physical appearance, but differ basically in the metal used to cast the body. Bombs are used with the AN-Mk 4 practice bomb signal that is a blank 10-gauge shotgun shell (extended length). Signals contain a black powder expelling charge and a red phosphorous pyrotechnic mixture. These bombs also are used with the MK5 signal that contains a fluorescein dye and is actuated by impact on water. When the Mk5 signal is installed, the firing pin assembly is not used.

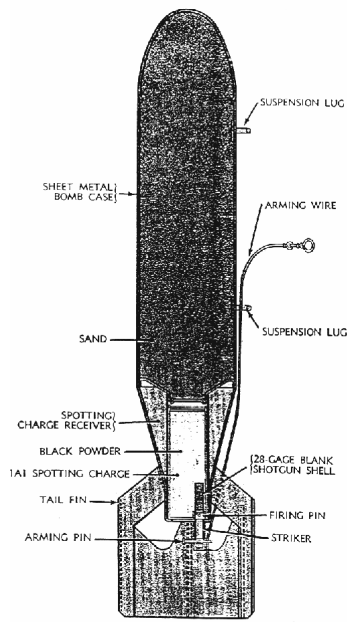
Over-all length	8.25 inches
Body Diameter	2.18 inches
Fin Dimension	2.5 inches
Weight	AN-Mk 5 Mod 1 - 2 lb. 11 oz. \pm 1 oz
	AN-Mk 23 - 3 lb. \pm 2 oz
	AN-Mk 43 - 4 lb. 7 oz. \pm 2 oz.
Signal	AN-Mk 4, Black powder/pyro- Technic charge Mk 5, Fluorescein dye

Reference: OP 1280, *Aircraft Bombs*, February 1945; TM 9-1325-200, *Bombs and Bomb Components*, April 1966

BOMB, PRACTICE, 100 POUND, M38A2



with M5 spotting charge



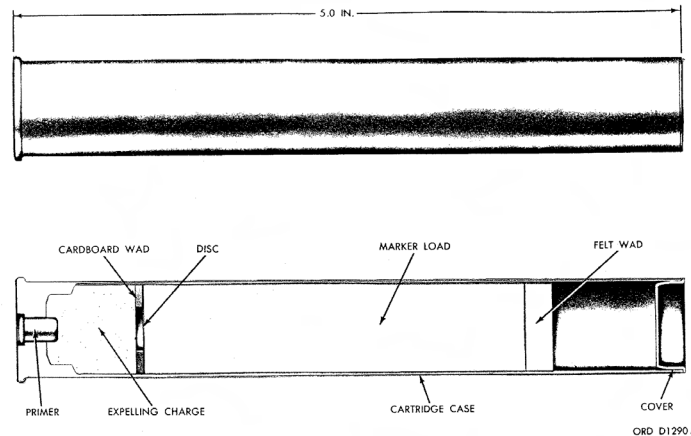
with M1A1 spotting charge

Description. This bomb simulates a General Purpose bomb of the same size. It is constructed of light sheet metal, approximately 22 gage, formed by rolling a rectangular sheet of metal into the form of a cylinder approximately 8 inches in diameter, and spot-welding the seam. The rounded nose is pressed from the same metal, as is the tail, which is formed in the shape of a cone. The tail portion ends in box type fins, which is welded to the cone. Inside of the smaller end of the conical tail section is welded the spotting charge receiver. The spotting charge is assembled in a sleeve at the base of the bomb, within the fin box. Authorized spotting charges are the M1A1, M3, and M5. When using the M5 spotting charge a wooden support rod is installed in the bomb. Two suspension lugs are bolted to the bomb body during fabrication. The Suspension Band M1 is provided for single suspension. The band is a separate component. The over-all length of the bomb body is 47.2 inches. When empty, the bomb body weighs approximately 14 pounds. When completely loaded with sand and spotting charge, the weight of the bomb is approximately 100 pounds.

Over-all length	47.5 inches
Diameter	8.13 inches
Weight empty	15.7 pounds
Weight sand loaded & spotting charge	100 pounds

Reference: TM 9-1904, *Ammunition Inspection Guide*, March 1944; NAVSEA OP 1664 Volume 2, *U.S. Explosive Ordnance*, February 1954; *Complete Round Chart #5981*, October 1944

SIGNAL, PRACTICE BOMB, Mk 4 Mod 3 & 4



Description. Practice Bomb signals Mk 4 Mods 3 and 4 are essentially 10-gauge shotgun shells. They contain an expelling charge of smokeless powder and are primed with a commercial primer. A pyrotechnic or inert marker load is separated from the expelling charge by a disc and cardboard gun wad. Felt gun wads that are cemented to the cover close the end of the shell.

Use. The signals are used in either the miniature or the larger practice bombs. However, installed in the miniature practice bombs, the signals do not consistently produce a visible signal when dropped from an altitude of 10,000 feet or higher. Released from that height, the bomb enters the water or earth so quickly that the signal frequently does not have time to function.

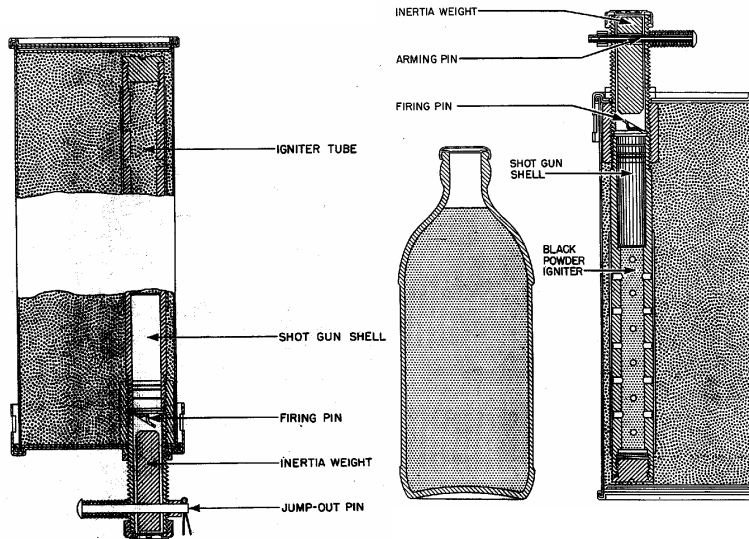
Functioning. When the practice bomb in which the signal is installed strikes water or the earth, impact causes the firing pin in the nose of the bomb to impinge upon the primer of the signal. The primer ignites the expelling charge, forcing the marker load out through an opening in the bomb. The resulting flash and puff of white smoke permit observation of bombing accuracy.

Differences. Signals Mk 4 Mod 0 was the first of this type developed. Mods 1 and 2 were procured later for issue to activities limited by environment to performing practice bombing in the vicinity of flammable areas. These signals contain inert materials that produce very little flash and are markedly inferior to the Mod 0. Mod 3 is similar to the Mod 0 but differs in that the cartridge case of the Mod 3 is extruded aluminum instead of paper; a primer mixture with improved storage characteristics has been used, a new pyrotechnic load has been incorporated. The Mod 4 signal is similar to the Mod 3 with the exception of an inert marker load of zinc oxide. In both Mods, the cover and cartridge case are cemented together; in Mod 3 the assembly also is staked in four equally spaced places.

Length and diameter	6.0 in by 0.85 in
Expelling charge	Smokeless powder
Marker load	Mod 3 Stabilized Red Phosphorous Mod 4 Zinc Oxide

Reference: TM 9-1325-200, *Bombs and Bomb Components*, April 1966

SPOTTING CHARGES, M1A1, M3, M5



M1A1

M5

M3

M1A1 Spotting Charge. This type of spotting charge fits in the after end of the 100-pound Practice Bomb M38A2. It produces a flash of flame and white smoke for observation of bombing accuracy. It is made from a large tin can, 11.18-inches long, 3.43-inches diameter, weighing 4.25-pounds. At the top of the can is a cover, which has a hole in it for the insertion of a 28-gage blank shotgun shell and firing mechanism. Upon impact, the inertia weight drives the firing pin into the shotgun-type primer, igniting the 3-pounds of black powder.

M3 Spotting Charge. The spotting charge has a 2 1/3-pound dark smoke filling and a black-powder igniter. It is 5/8 of an inch longer than the Spotting Charge M1A1, but otherwise similar. The M3, with its dark smoke filler, is well adapted for bombing practice over snow-covered terrain. The black-powder igniter charge contains approximately 425 grains. It is used in the M38A2 Practice bomb.

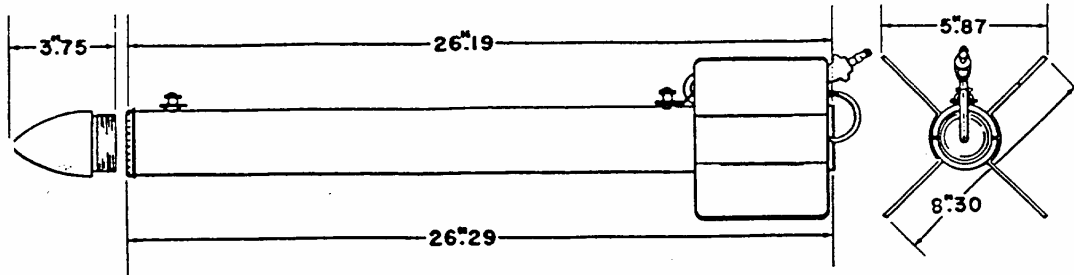
M5 Spotting Charge. The spotting charge consists of a glass bottle filled with FS smoke mixture. An ordinary bottle cap seals the mixture. The bottle is held to the Practice Bomb M38A2 by a wire twisted around the neck of the bottle and attached to the tail vanes. The charge assembly weighs 2.54 pounds.

Reference: TM 9-1904, *Ammunition Inspection Guide*, March 1944; NAVSEA OP 1664 Volume 2, *U.S. Explosive Ordnance*, February 1954

CTT28

AERIAL ROCKETS (PRACTICE)

ROCKET, 2.25-INCH PRACTICE



Use. These rockets were used for practice firing against surface targets. The rocket is forward fired from aircraft and simulated the trajectories of the 5 inch rockets.

Description. The 2.25 inch practice rockets originally came in two different Marks (Mk) or models, the Mk II and Mk III. The acronym associated with them was SCAR, or sub-caliber aerial rocket. Other models followed. They consisted of a head, rocket motor, fins, igniter, and an electrical cable. The heads are solid steel, zinc die cast, or cast iron and contain no fuzes,

Motor. Mk 15 Mod 0,2, is 26.18 inches long and weighs to 10.90 pounds (max). The item's explosive hazard is the propellant (Mk 16 Mod 0,1) in the rocket motor and the igniter (Mk 112 Mod 0,1,2).

Weight.....12.47 pounds
Diameter of Body2.25 inches
Length29.07 inches

Reference: NAVSEA OP 1415, *Rocket Assemblies*, May 1955

